SMD 202
SMD 101

H.264 STREAMING MEDIA DECODERS

Flexible, High Performance AV Decoding and Media Playback

- Plays back media files from internal memory, removable SD card, USB storage, or network shares
- Decodes live H.264 streaming using a variety of streaming protocols
- Local HDMI input with embedded stereo or analog stereo audio
- Selectable output resolutions from 640x480 to 1920x1200 including 1080p/60
- Supports streaming resolutions from 480x320 up to 1080p/60
- Multi-language, interactive on-screen display for setup and source selection

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The Extron **SMD 202** and **SMD 101** are compact, high performance H.264 decoders used in end-to-end streaming applications with Extron H.264 streaming media processors and encoders. The SMD 101 is a live streaming decoder that can also play back media files from network shares. The SMD 202 offers a broader set of capabilities, supporting presentation of a locally connected AV source, live stream decoding, and playback of media files from internal memory, removable SD card, USB storage device, and network shares. Extron streaming media decoders support a wide range of media container formats, streaming transport, and session management protocols, making them adaptable for use with a variety of encoded media.

The SMD 202 and SMD 101 feature advanced signal processing, scaling, and aspect ratio management, which deliver high quality signals to AV displays. The on-screen display provides valuable device and status information and aids in setup and source selection using an optional hand held remote control or the front panel on the SMD 202. Designed for use in pro AV applications, Extron streaming media decoders can also be controlled using Ethernet, RS-232, IR, or wired IR.

Advanced Signal Processing for Professional AV Applications

Extron streaming media decoders offer signal processing features that deliver superior quality and simplify AV integration. They can scale outputs to a wide range of display frequencies and resolutions, from 640x480 to 1920x1200, including 1080p, providing consistent, reliable image quality. The output format can be manually selected or automatically configured based on EDID communication with the connected display. Aspect ratio management includes FILL, FOLLOW, and ZOOM options, which provide options to present video in the format that best serves the application. Intelligent signal processing including EDID Minder® and Key Minder® support efficient, high-quality interfacing with digital displays. These and many other signal processing features produce superior results integrating streaming and media playback in professional AV systems.

Extron streaming media decoders are highly adaptable to the streaming and media playback requirements found in professional AV applications.

Broad Streaming Compatibility

The SMD 101 and SMD 202 support decoding of H.264 video and AAC audio using a variety of AV streaming transport and session management methods. They are compatible with the H.264 Baseline, Main, and High profiles up to Level 4.2, supporting bit rates up to 40 Mbps. Both pull and push session management methods are supported, using a variety of streaming transport protocols providing compatibility with many H.264 encoders and IP cameras in various network and system configurations.

Effective Management of Live Streaming and Media Playback

Extron streaming media decoders provide powerful tools for managing multiple streaming and playback sources. Playlists may be used to organize sequential presentation of video and still image files, allowing pre-roll video or logos to be inserted prior to stream playback. Playlists may also be assigned to channel presets. Playlists and channel lists simplify control and management of streaming content from an AV presentation system.

Powerful Control and Configuration

There are many methods to configure, control, and manage Extron streaming media decoders, directly or as part of a system. The embedded web page provides an intuitive interface to configure signal processing and control parameters, and create playlists and channel lists for efficient user selection of streaming media sources. Extron streaming media decoders can be controlled using RS-232, IR, and wired IR. They also support pass-through of bi-directional RS-232 control over Ethernet, providing the flexibility to manage displays or other devices from a central control system.

Applications

Extron streaming media decoders offer diverse streaming, playback, control, and signal processing features packaged in a compact, energy-efficient form factor. They can be used as a playback device or as a multi-function streaming media source in professional AV systems. Ideal applications include:

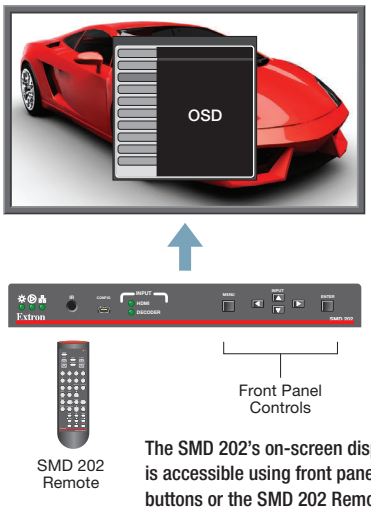
- Media player
- Decoding of live streaming sources
- Multi-channel AV streaming systems
- High resolution AV signage systems
- Multi-media presentation source
- Media playback in exhibits or kiosks

FEATURE	SMD 101	SMD 202
Live H.264 video and AAC audio decoding	✓	✓
Decode formats up to 1080p/60	✓	✓
Media File Playback from internal memory and network shares	✓	✓
Selectable output resolutions up to 1920x1200	✓	✓
Fill/Follow/Zoom Aspect Ratio management	✓	✓
Playlist and Channel List source management	✓	✓
Flexible streaming protocols	✓	✓
Removable SD memory card for media storage		✓
Local USB port for media storage		✓
Subtitling options		✓
Local HDMI AV input		✓
Interactive multi-language on-screen display		✓
Seamless still image and video transition effects		✓

A comparison of features available from the SMD 101 and SMD 202.

Comparing the SMD 101 and SMD 202

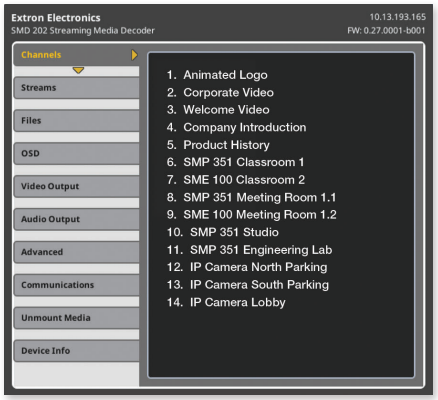
The SMD 202 and SMD 101 both feature the same advanced signal processing, scaling and aspect ratio management features as well as control, channel list, and playlist management capabilities that make them highly adaptable for professional AV systems. The SMD 202 distinguishes itself from the SMD 101 by offering a broader set of media storage and file list management options, a multi-language on-screen display – OSD interface, and elegant transitions between still image and media files.



The SMD 202's on-screen display is accessible using front panel buttons or the SMD 202 Remote.

Powerful OSD Interface and Messaging

The SMD 202 features an interactive on-screen display, which provides an efficient interface for device setup and configuration. Content can be selected efficiently by navigating to channels, streams, and media files. The SMD 202 OSD supports many languages including: Chinese, English, French, German, Italian, Japanese, Portuguese, Spanish, and Russian.



The SMD 202's on-screen display provides an intuitive interface for setup and source selection.

Flexible High Quality Media Playback

The SMD 202 provides the flexibility to play back media files from internal memory, removable SD card, USB storage device, and network shares. It supports media files that contain H.264 video and AAC audio, including MP4, M4V, M4A, and MPEG-2 Transport Streams - TS. The SMD 202 can apply variable rate dissolves and hard cuts to transitions between still image files. Multiple playlist formats are supported, and seamless file transitions can be produced using 'fast start' MP4 files or TS files in conjunction with .m3u8 format playlists.

Closed captioning and subtitling can be displayed on-screen from timed text streamed with the video or by using stand-alone SubRip and WebVTT files with video clips. The SMD 202 supports multiple languages and user supplied fonts. The variety of storage media, container formats, on-screen text options, and graceful source transitions make the SMD 202 ideal for many applications with higher quality production expectations.

The SMD 202 can render on-screen text using many different languages.

Features

PROFESSIONAL CONTROL, STREAMING, AND MEDIA PLAYBACK

The SMD 202 offers a range of configuration, control, and media management features that deliver high quality streaming and media playback as part of an effective presentation system. Key features that make this possible are:

Playlist Management
Play media files in a sequence that can be selected as a programmed channel.

Channel List Development
Programmed channel lists simplify selection of live streams, media files, and playlists, using a handheld remote control, the front panel buttons, or an AV control system.

Intelligent SAP/SDP stream identification
Simplify channel list development for live streaming sources.

Flexible streaming transport and session management protocol options
A range of protocols provide broad compatibility with encoders, IP cameras, and various network and system requirements.

Compatible with multiple container formats
The SMD 202 is adaptable for use with a variety of media file formats. It supports playback of MP4, M4V, M4A, and MPEG-2 TS formats.

Image File Sources
Upload PNG, JPG, TIFF, or BMP files to present organizational branding in a playlist or when streaming data has been disrupted.

Elegant still frame transitions
Apply hard cut, or variable rate dissolve transitions between still image files.

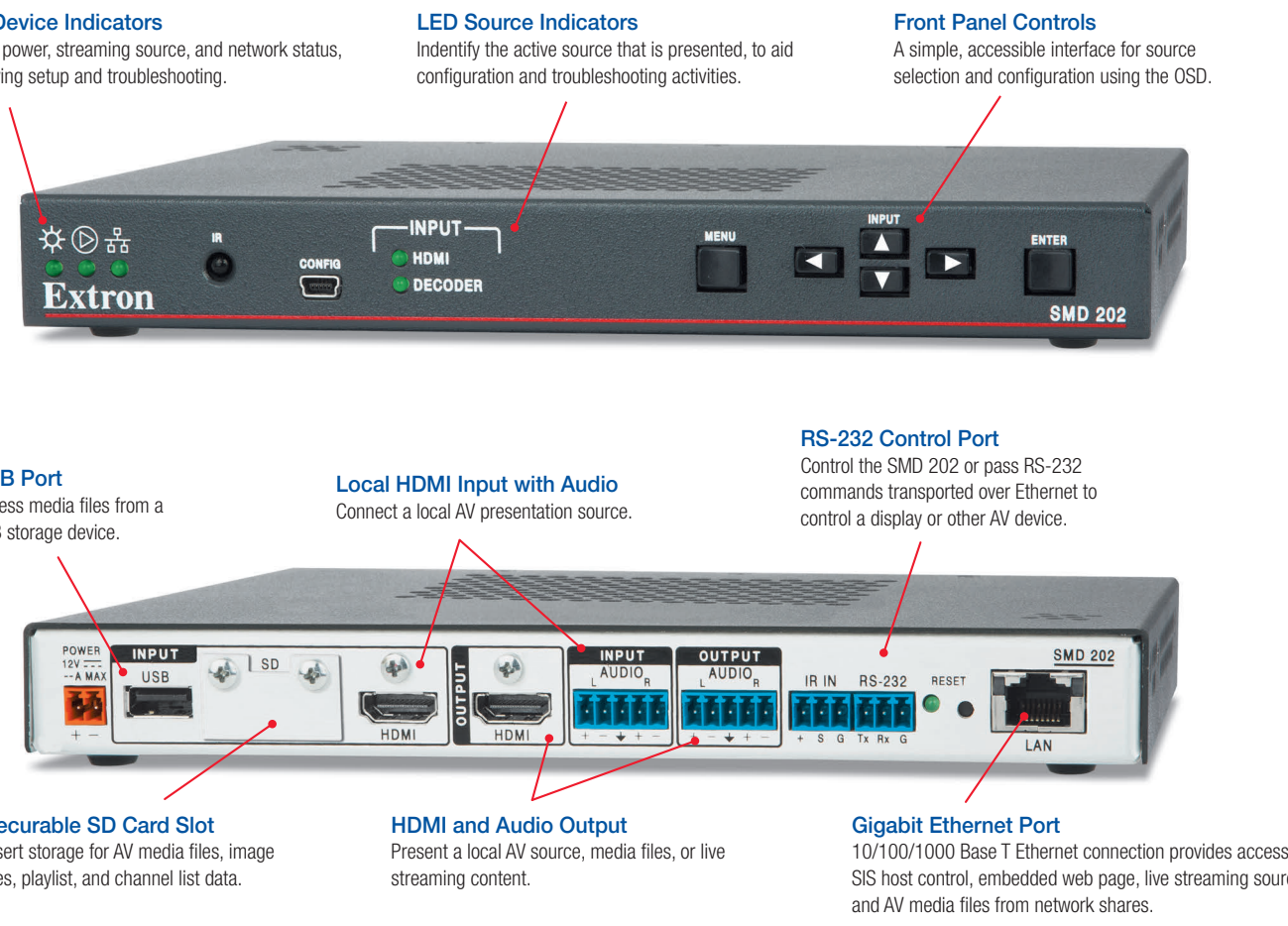
Clean source transitions
Use 'fast start' MP4 files or TS files in conjunction with .m3u8 playlists to produce seamless transitions between files and looped playback.

Interactive On Screen Display – OSD
Configure the SMD 202 and select content quickly and efficiently from the front panel or with the SMD 202 Remote.

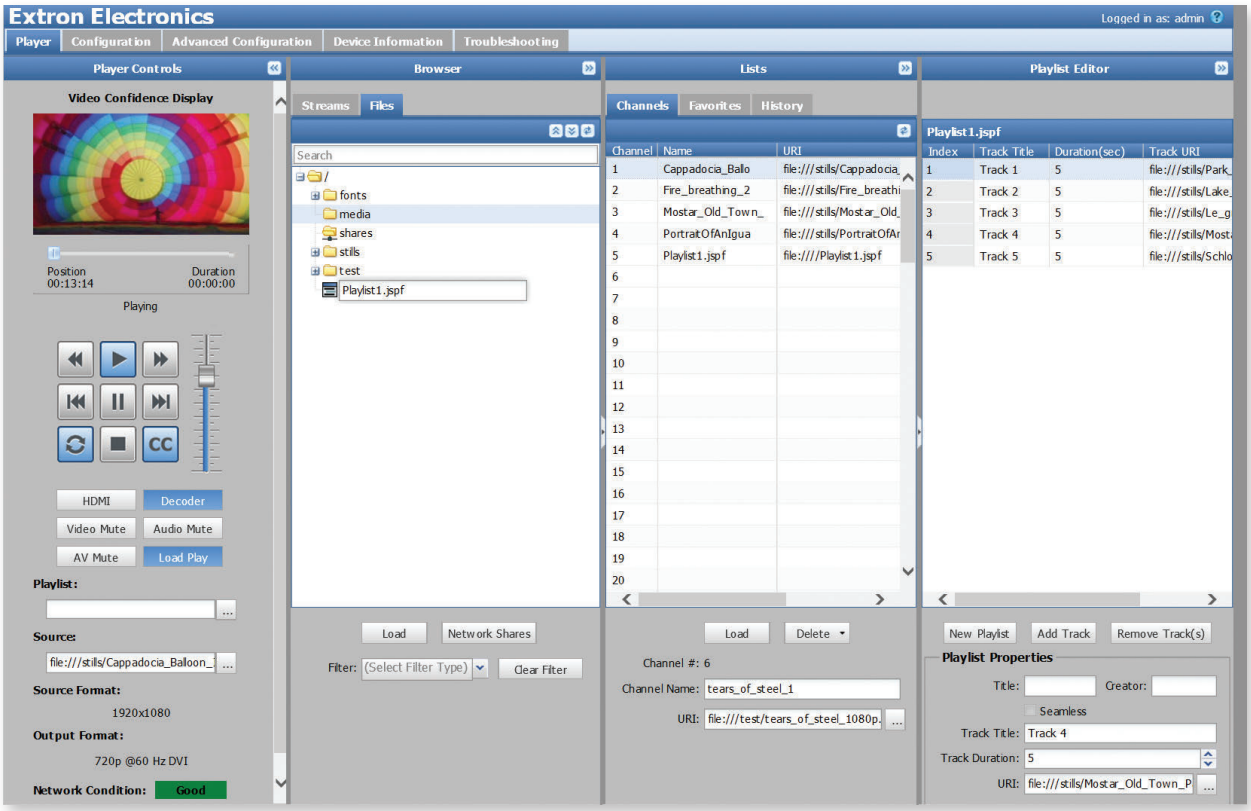
Multi-language OSD Support
Configure the OSD for use with Chinese, English, French, German, Italian, Japanese, Portuguese, Spanish, and Russian languages.

Transport Control
Use play, pause, stop, and seek control functions common to media players.

Flexible support for closed captions and subtitles
On-screen information can be rendered from timed text sources including international language support.



Configuration and Control



The embedded web page on the SMD 202 provides tools for creating channel lists and playlists.

Control and Management

Extron streaming media decoders can be managed and configured from the intuitive, easy-to-navigate embedded web page, which includes a full color video confidence display window for verification of AV streaming sources. The embedded web page clearly identifies features such as audio format, video format, resolution, user access, network, and control settings, making configuration of the decoder and streaming sources a simple process. The interface can be used to select live streams, still image files, or AV media files. A progress bar presents the file path, position, and duration of AV media files.

Playlist and Channel Management

The SMD 202 and SMD 101 feature customizable playlists and channel lists that streamline the control and management of content. Playlists can organize playback of motion video and still image files, allowing pre-roll video or logos to be inserted in front of a featured stream or media file. The embedded web page features channel history and favorites, which provide valuable information for examining activity and returning to prior operating states. Extron streaming media decoders can be configured to present a specific streaming source or playlist on power up, and can be configured to continuously loop a specific media file or playlist.

Scalable System Deployment

Systems with many SMD 202 or SMD 101 decoders that use common playlists and channel lists can be programmed and configured quickly and efficiently. Programmed source definition Universal Resource Identifiers - URIs, and associated playlist and channel list data can be imported and exported as device configuration files. The configuration data from one encoder can be uploaded to multiple units, simplifying and streamlining system programming.

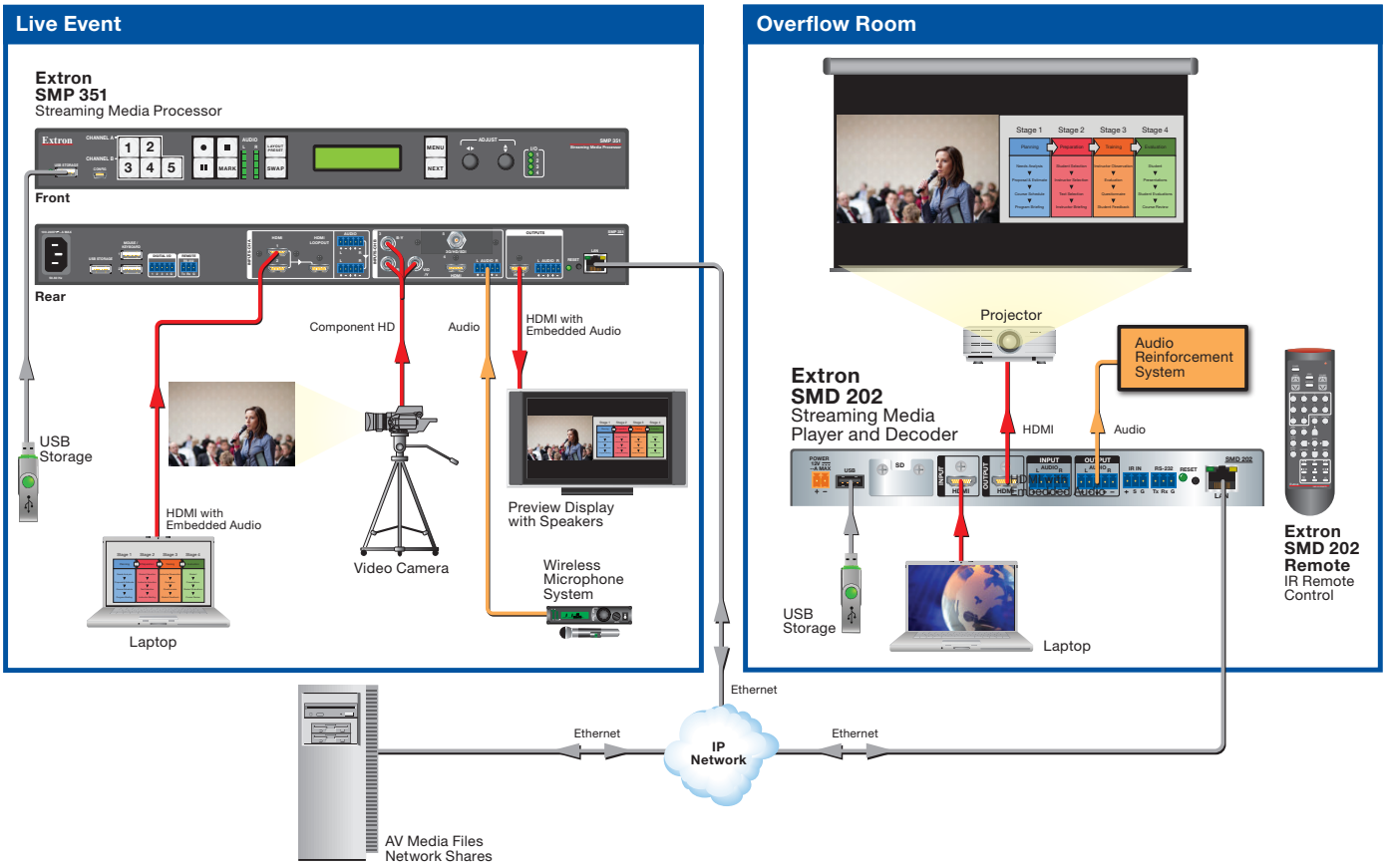
SMD 202 Remote

The optional Extron SMD 202 Remote handheld IR remote control is available for use with the SMD 202. It provides basic streaming channel selection, AV media file playback control, and other basic decoder management functions. It serves as an alternate interface to front panel buttons for setting up the SMD 202 and navigating to streams, channels, or files interacting with the OSD. The SMD 101 Remote is also available for use with the SMD 101 H.264 decoder.

Applications

STREAMING DECODER FOR LIVE EVENTS

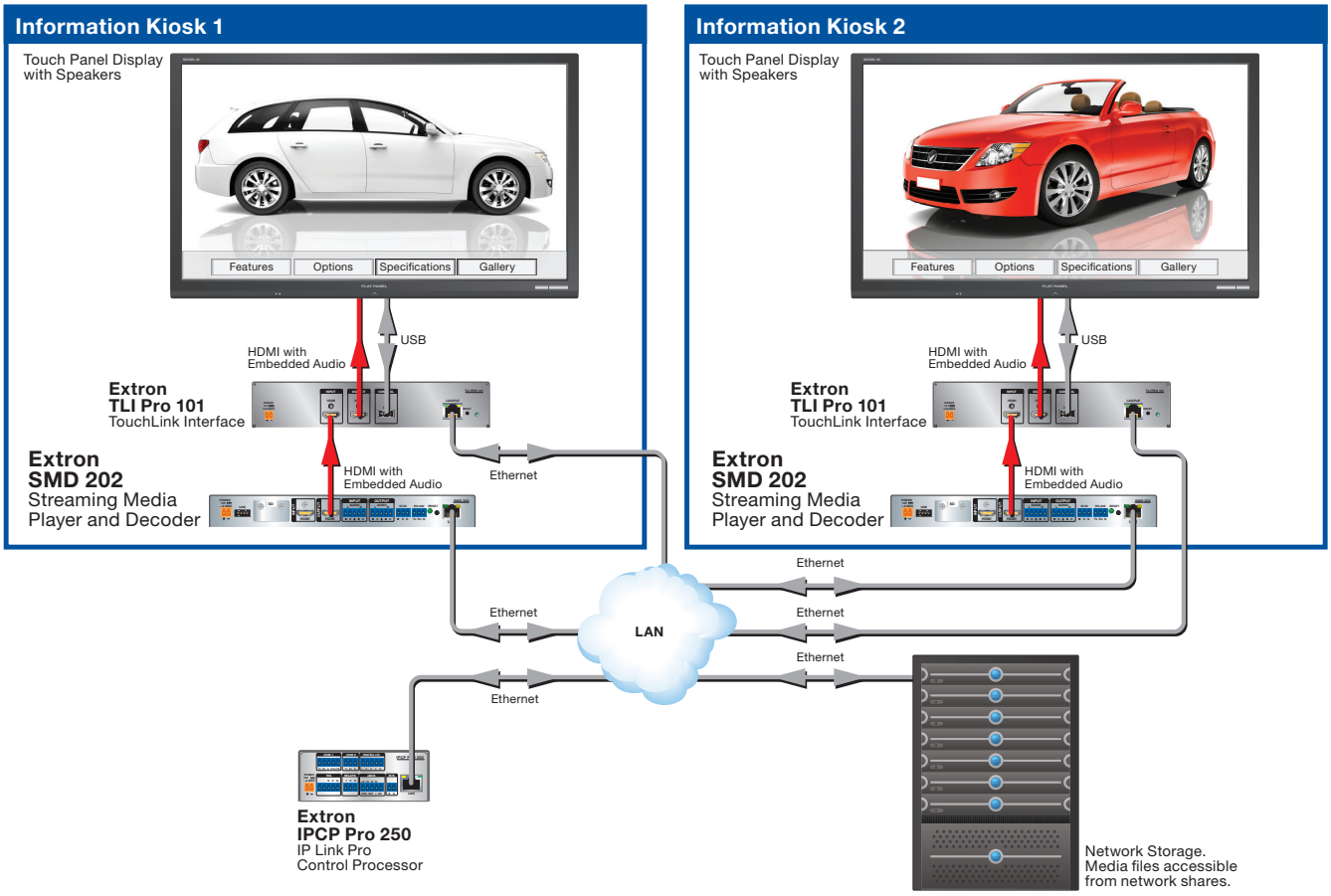
The SMD 202 can be used as a live stream decoder, presenting live video and audio in overflow locations during popular events where a single auditorium or presentation room cannot support all attendees. In the configuration below, a host in the overflow room starts the presentation by playing an introductory media file from a USB thumb drive connected locally to the SMD 202. The host then switches to the live event using the SMD 202 Remote. At the live event, an Extron SMP 351 Streaming Media Processor combines video from a laptop with camera video and audio of the speaker, encoding, recording, and streaming the presentation to the SMD 202 in the overflow room. The SMD 202 supplies the HDMI signal to a projector, and provides stereo audio to a sound reinforcement system. After the streamed presentation has concluded, the host presents content from a laptop connected to the SMD 202's HDMI input to guide a recap discussion. Media files saved on the network in a shared directory are also available for playback from the SMD 202.



Applications

MEDIA PLAYER FOR PROMOTIONAL OR EDUCATIONAL KIOSKS

The SMD 202 is ideal for use as a media player in informational kiosks found in museums, visitor centers, and show rooms. Shown below, the SMD 202 plays back marketing productions for various automobiles found in the showroom. These productions are presented on a flat panel display with an embedded touch surface. An Extron TLI Pro 101 TouchLink interface produces a user menu, combines it with video from the SMD 202, and presents it on the flat panel. Users select content by touching the flat panel directly. The IPCP Pro 250 issues control commands to the SMD 202, selecting various playlists or media files from the programmed channel list. Audio embedded in the HDMI signal is supplied from the SMD 202 through the TLI Pro interface to the flat panel display and its embedded speakers. Commonly used media files are stored in the SMD 202 on an internal SD card, and new or special event content can be accessed from network shares on a server.



Specifications

DECODER INPUT	
Number/signal type	1 H.264/AVC digital video and ACC audio over IP
Connectors	1 shielded RJ-45
Ethernet data rate	10/100/1000Base-T
Network file share protocols	CIFS/SMB, (SMB 2.x) NFS
USB host	USB 2.0 (500 mA). Speed and capacity limited by storage device.
Connector	1 rear panel USB type A
SD Card Slot	SD, SDHC to speed class 10 / UHS-1 (10-25 MB/sec). FAT or FAT32 (preferred) file system.
Streaming Protocols	
Pull streams	RTP/RTCP (RFC 3550), RTSP (RFC 2326), interleaved RTSP (RTP/RTSP), RTP/RTSP tunneled through HTTP
Push streams	MPEG-2 TS/UDP (ISO/IEC 13818-1), MPEG-2 TS/RTP (RFC 2250), Direct RTP (RFC 3984)
Stream discovery	SAP (RFC 2974), SDP (RFC 4145, RFC 4566)
Transport	TCP, UDP, RTP, multicast or unicast
Container (if included)	MPEG-2 TS MPEG-2 part 1 (or ISO/IEC 13818-1 or ITU-T Rec. H.222.0), MP4 (including mp4, m4a, m4v file extensions, not case sensitive) MPEG-4 part 14 (ISO/IEC 14496-14) compatible containers (using H.264 and AAC wav audio files)
Encoding	
Audio coding	AAC-LC (MPEG-2 part 7, MPEG-4 part 3, sub part 4 and part 14, MP4 mono or stereo audio, max 384 kbps), PCM mono or stereo 16 kHz to 96 kHz, 16-bit to 32-bit
Video coding	MPEG-4 part 10 (AVC) H.264 BP, MP, HiP to level 4.2 (<40 Mbps over 1 second)
Image file formats	BMP, JPG, PNG, TIFF up to 1920x1080 (TIFF files using JPEG compression are not supported)

VIDEO INPUT AND PASS-THROUGH	
Number/signal type	1 HDMI/DVI digital video
Connector	1 female HDMI type A
Resolution range	640x480@60 Hz through 1920x1200@60 Hz includes 480i, 576i, 480p, 576p, 720p, 1080i, 1080p, 2K
Standards	DVI 1.0, HDMI 1.4, HDCP

VIDEO PROCESSING	
Maximum pixel clock	165 MHz
Source rates	480p up to 1920x1080p @ 60 Hz
Chroma subsampling	4:2:2 and 4:4:4
Latency	<1 second

VIDEO OUTPUT	
Number/signal type	1 HDMI/DVI digital video
Connector	1 female HDMI type A
Vertical frequencies	24 Hz to 75 Hz (pass-through) 23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz (decoder output)
Output resolutions	640x480, 800x600, 1024x768, 1280x720, 1280x724, 1366x768, 1600x1200, 1920x1200, 480p, 576p, 720p, 1080i, 1080p
Standards	DVI 1.0, HDMI 1.4 (HDCP 1.1 with HDMI input selected)

AUDIO INPUT	
Digital audio input - pass-through	
Number/signal type	1 HDMI embedded digital audio (stereo)
Analog audio input - pass-through	
Number/signal type	1 stereo, balanced or unbalanced

AUDIO OUTPUT — ANALOG	
Number/signal type	1 stereo, balanced/unbalanced
Connectors	(1) 3.5 mm captive screw connector, 5 pole

AUDIO OUTPUT — DIGITAL	
Number/signal type	1 stereo, HDMI (embedded)

CONTROL/REMOTE	
OSD	Interactive on-screen menu with front panel or optional IR remote and support for Chinese, English, French, German, Italian, Japanese, Portuguese, Spanish, and Russian languages.
USB	
USB configuration ports	1 front panel female mini USB B
Serial control	
Serial control port	1 bidirectional RS-232, rear panel 3.5 mm captive screw connector, 3-pole
Ethernet control	
Ethernet host port	1 female RJ-45 connector
Ethernet data rate	10/100/1000Base-T
Ethernet protocol	TCP/IP, ARP, DHCP, ICMP (ping), Telnet, HTTP, SMTP, SNMP v2c, MIB-II (RFC 3416/17/18)

GENERAL	
Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 2.0 A, 24 watts
Power consumption	
Device	13.2 watts, 12 VDC
Device and power supply	15.8 watts, 100-240 VAC, 50-60 Hz
Thermal dissipation	
Device and power supply	53.9 BTU/hr
NOTE: Power Consumption and Thermal Dissipation specifications include connected HDMI and USB peripherals.	
Enclosure dimensions	1.0" H x 8.75" W x 6.0" D (half rack wide) (2.5 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors.)
Product weight	1.2 lbs (0.5 kg)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Warranty	3 years parts and labor

NOTE: The Specifications identified here are for the SMD 202.
For SMD 101 Specifications please refer to the Extron website at www.extron.com

Model	Version Description	Part number
SMD 202	H.264 Decoder and Player	60-1306-01
SMD 202 Remote	Handheld IR Remote Control for SMD 202	70-1059-01
SMD 101	H.264 Decoder	60-1305-01
SMD 101 Remote	Handheld IR Remote Control for SMD 101	70-1058-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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